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10/754,098	01/02/2004	Robert Knauerhase	5038-328	6512

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EXAMINER

LAI, MICHAEL C

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2157

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

AD

Office Action Summary	Application No. 10/754,098	Applicant(s) KNAUERHASE ET AL.	
	Examiner Michael C. Lai	Art Unit 2157	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18, 26-29 and 37 is/are rejected.
- 7) ☒ Claim(s) 19-25 and 30-36 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>05/26/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is responsive to communication filed on 01/02/2004.

Claims 1- 37 have been examined.

Specification

2. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

The section "BRIEF SUMMARY OF THE INVENTION" is missing in the instant application. Appropriate correction is required.

Claim Objections

3. Claims 11 and 14 are objected to because of the following informalities: "farm machine" in both claims are not defined in the Specification. For examination purpose, the examiner assumes "farm machine" to be "server farm machine", as mentioned in the Specification. Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-3, 5-16, and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Shorter (US 5,063,500, hereinafter Shorter).

Regarding claim 1, Shorter discloses a service apparatus implemented in a machine, comprising:

a service request receiver to receive a request for a first service [col. 5,

lines 27-35, the pool manager at the host.];

a storage [FIG. 1 and col. 6, lines 58-62, IBM 360/370 has a storage];

a set of virtual machines stored in the storage, each virtual machine to implement a service [FIGs. 5, 6A, 6B, and col. 11, lines 9-18];

a service manager to manage the set of virtual machines [FIG. 5 and col. 10, lines 38-59, the VMPM 46]; and

a transmitter to return an access to a first virtual machine in the set of virtual machines as a response to the request for the first service [col. 5, lines 43-56, virtual machine assignment and inter-program communication].

Regarding claim 2, Shorter discloses a service apparatus according to claim 1, wherein: the service apparatus further comprises:

a database of service provider data [FIG. 5, 6A, 6B, and col. 11, lines 9-18. Each virtual machine performs a service. A list of virtual machine is equivalent to a database of service provider data.]; and

an image constructor to use the database to construct an image [col. 10, lines 45-54, each virtual machine presenting a complete image of a computer to the VM operating system implies that there is an image constructor]; and

the service manager is operative to install the image as the first virtual machine in the set of virtual machines [col. 10, lines 45-54].

Regarding claim 3, Shorter discloses a service apparatus according to claim 1, wherein:

the service apparatus further comprises a database of images [FIG. 5, 6A, 6B, and col. 11, lines 9-18. Each virtual machine performs a service. A list of virtual machine is equivalent to a database of service provider

data, also each virtual machine presenting a complete image of a computer to the VM operating system.]; and

the service manager is operative to install a first image from the database of images as the first virtual machine in the set of virtual machines [col. 10, lines 45-54, each virtual machine presenting a complete image of a computer to the VM operating system.].

Regarding claim 5, Shorter discloses a service apparatus according to claim 1, further comprising a deleter to delete the virtual machine [col. 1, lines 38-41, adjusting the pool size implies creating/deleting virtual machines.] .

Regarding claim 6, Shorter discloses a service apparatus according to claim 1, the service manager including a table stored in the storage, the table to indicate a state for each virtual machine in the set of virtual machines [FIG. 6A, 6B, the BUSY indicator].

Regarding claim 7, Shorter discloses a service apparatus according to claim 1, further comprising a list of services offered by the service apparatus, the list of services to include at least the services offered by each virtual machine in the set of virtual machines [FIG. 5, 6A, 6B, and col. 11, lines 9-18. Each virtual machine performs a service. A list of virtual machine is equivalent to a list of service.].

Regarding claim 8, Shorter discloses a service apparatus according to claim 1, wherein at least one of the virtual machines implements the service and a second service [col. 12, lines 59-65, VM01 implements both MAIL and DIRECTORY services].

Regarding claim 9, Shorter discloses a system, comprising:

- a network [FIG. 1, the SNA network];
- a service request receiver to receive a request for a first service [col. 5, lines 27-35, the pool manager at the host.];
- a list of services offered [FIG. 5, 6A, 6B, and col. 11, lines 9-18. Each virtual machine performs a service. A list of virtual machine is equivalent to a list of service.];
- a service manager to manage the set of virtual machines [FIG. 5 and col. 10, lines 38-59, the VMPM 46]; and
- a transmitter to return an access to a first virtual machine in the set of virtual machines as a response to the request for the first service [col. 5, lines 43-56, virtual machine assignment].

Regarding claim 10, Shorter discloses a system according to claim 9, further comprising a client machine coupled to the network, the client computer to send the request [FIG. 1, Terminal 21].

Regarding claim 11, Shorter discloses a system according to claim 9, further comprising at least one farm machine [FIG. 1, hosts], each farm machine including:

- a storage [FIG. 1 and col. 6, lines 58-62, IBM 360/370 has a storage]; and
- at least one virtual machine from the set of virtual machines, stored in the storage of the farm machine, each virtual machine to implement a

service [col. 6-7, lines 63-18, host 23, "MAIL" and "CALENDAR" applications].

Regarding claim 12, Shorter discloses a system according to claim 9, further comprising a list of services offered by the system, the list of services to include at least the services offered by each virtual machine in the set of virtual machines [FIG. 5, 6A, 6B, and col. 11, lines 9-18. Each virtual machine performs a service. A list of virtual machine is equivalent to a list of service.].

Claim 13 is of the same scope as claim 1. It is rejected for the same reason as claim 1.

Regarding claim 14, Shorter discloses a system according to claim 9, further comprising:

a service apparatus, the service apparatus to include the service request receiver [col. 5, lines 27-35, the pool manager at the host.] and the transmitter [col. 5, lines 43-56, virtual machine assignment];
at least one farm machine [FIG. 1, hosts], each farm machine to include:
a storage [FIG. 1 and col. 6, lines 58-62, IBM 360/370 has a storage]; and
at least one virtual machine from the set of virtual machines, stored in the storage of the farm machine, each virtual machine to implement a service [col. 6-7, lines 63-18, host 23, "MAIL" and "CALENDAR" applications]; and
a management machine, the management machine to include the service manager [FIG. 5 and col. 10, lines 38-59, the VMPM 46].

Claim 15 is of the same scope as claim 8. It is rejected for the same reason as claim 8.

Regarding claim 16, Shorter discloses a method, comprising:

receiving a request for a service [col. 5, lines 27-35, the pool manager at the host.];

accessing a list of services offered by a set of virtual machines [col. 11, lines 61-66, scanning the control block.];

determining if the requested service is in the list of services [col. 11-12, lines 61-3]; and

if the requested service is in the list of services:

determining an identifier for the virtual machine offering the requested service [col. 12, lines 54-65]; and

returning the identifier for the virtual machine offering the requested service [col. 12, lines 59-65].

Claim 27 is of the same scope as claim 16. It is rejected for the same reason as for claim 16.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 4, 26, and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shorter as applied to claim 1.

Regarding claim 4, Shorter discloses a service apparatus according to claim 1, but silent about further comprising an archiver to archive the virtual machine. Official Notice is taken for archiving the virtual machine, which is a well known technique in resource management. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to try to archive the virtual machine for the purpose of saving memory by swapping inactive virtual machines out of the processor and active memory, thereby those virtual machine can be restored without re-instantiation.

Regarding claim 26, Shorter discloses a method according to claim 16, wherein determining the virtual machine includes: determining if the virtual machine is active, sleeping [FIG. 6A, 6B, the BUSY indicator is YES or NO]; and if the requested machine is sleeping, activating the virtual machine [FIG. 6A, 6B, the BUSY indicator from NO to YES]. Shorter is silent about determining if the virtual machine is archived and if the requested machine is archived, activating the virtual machine. Official Notice is taken for determining if the virtual machine is archived and if the requested machine is archived, activating the virtual machine, which is a well known technique in resource management. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to try to determine if the virtual machine is archived and if the requested machine is archived, activating the virtual machine for the purpose

of saving memory by swapping inactive virtual machines out of the processor and active memory, thereby those virtual machines can be restored without re-instantiation.

Claim 37 is of the same scope as claim 26. It is rejected for the same reason as for claim 26.

8. Claims 17 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shorter as applied to claim 16, in view of Ottati (US 6,704,764 B1, hereinafter Ottati).

Regarding claim 17, Shorter discloses a method according to claim 16, further comprising, if the requested service is not in the list of services, assign a virtual machine to service the request and returning an identifier for the virtual machine [col. 5, lines 37-42, and col. 12, lines 59-65]. But Shorter is silent about creating an image for a new virtual machine that offers the requested service and installing the image for the new virtual machine. However, Ottati teaches if a virtual machine is unavailable then spawning and loading a new virtual machine to instantiate a thread corresponding to the requested service [claim 1 and col. 6, lines 11-27]. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to create and install a new virtual machine for the purpose of serving any new service request on the fly by dynamically managing a pool of virtual machines.

9. Claims 18 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shorter, in view of Ottati as applied to claim 17, and further in view of Edstrom et al. (US 2002/0013827 A1, hereinafter Edstrom).

Regarding claim 18, Shorter-Ottati disclose a method according to claim, but are silent about further comprising adding the requested service to the list of services. However, Edstrom teaches adding the desired service to a list of subscribed-to services [para. 0102, lines 14-17]. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to add the requested service to the list of services for the purpose of providing faster and more efficient services in the future by updating the service list.

Allowable Subject Matter

10. Claims 19-25 and 30-36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Applicant is reminded that in amending in response to a rejection of claims, the patentable novelty must be clearly shown in view of the state of the art disclosed by the references cited and the objection made. Applicant must show how the amendments avoid such references and objections. See 37 CFR 1.111(c).

12. Nageswaran, US Patent Number 5,991,792, has taught a method dynamically managing a thread pool of reusable threads in a computer system.

Examiner's Note: Examiner has cited particular columns and line numbers in the references applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner.

In the case of amending the claimed invention, Applicant is respectfully requested to indicate the portion(s) of the specification which dictate(s) the structure relied on for proper interpretation and also to verify and ascertain the metes and bounds of the claimed invention.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael C. Lai whose telephone number is (571) 270-3236. The examiner can normally be reached on M-F 8:30 - 5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on (571) 272-4001. The fax

phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Michael C. Lai
18JAN2008


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